Claims

1. A radiation-emitting semiconductor component with a semiconductor body that includes a first principal surface (5), a second principal surface (9) and a semiconductor layer sequence (4) with an electromagnetic radiation generating active zone (7), said semiconductor layer sequence (4) being disposed between the first and the second principal surfaces (5, 9),
characterized in that

- a first current spreading layer (3) is disposed on said principal surface (5) and is electrically conductively connected to said semiconductor layer sequence (4);
- a second current spreading layer (10) is disposed on said second principal surface (9) and is electrically conductively connected to said semiconductor layer sequence (4).

2. The radiation-emitting semiconductor component as in claim 1,
characterized in that
at least one of said two principal surfaces (5, 9) comprising said current spreading layers (3, 10) has a microstructure (12).

3. The radiation-emitting semiconductor component as in claim 1 or 2,
characterized in that
at least one of said current spreading layers (3, 10) contains a material that is transparent to the generated radiation.

4. The radiation-emitting semiconductor component as in one of claims 1 to 3,
characterized in that
both current spreading layers (3, 10) contain a material that is transparent to the generated radiation.

5. The radiation-emitting semiconductor component as in claim 3 or 4,
characterized in that
said radiation-transparent material contains an oxide.

6. The radiation-emitting semiconductor component as in claim 5,
characterized in that
said oxide is a metal oxide.

7. The radiation-emitting semiconductor component as in one of claims 3 to 6,
characterized in that
said radiation-transparent material contains ITO and/or InO.

8. The radiation-emitting semiconductor component as in one of claims 3 to 6,
characterized in that
said radiation-transparent material contains ZnO.

9. The radiation-emitting semiconductor component as in one of claims 3 to 6,
characterized in that
said radiation-transparent material contains SnO.

10. The radiation-emitting semiconductor component as in one of claims 1 to 9,
characterized in that
at least one of said current spreading layers (3, 10) contains Al, Ga, In, Ce, Sb and/or F.

11. The radiation-emitting semiconductor component as in one of claims 1 to 10,
characterized in that
disposed on at least one of said current spreading layers (3, 10) is a mirror layer (2).

12. The radiation-emitting semiconductor component as in claim 11,
characterized in that
said mirror layer (2) is disposed on the side of said current spreading layer (3) facing away from said semiconductor layer sequence (4).

13. The radiation-emitting semiconductor component as in claim 11 or 12,
characterized in that
said mirror layer (2) is electrically conductive.

14. The radiation-emitting semiconductor component as in one of claims 11 to 13, characterized in that
said mirror layer (2) contains a metal.

15. The radiation-emitting semiconductor component as in one of claims 11 to 14, characterized in that
said mirror layer (2) contains Au, Ag, Al and/or Pt.

16. The radiation-emitting semiconductor component as in one of claims 11 to 15, characterized in that
said principal surface (9) has a microstructure (12) on the side of said semiconductor layer sequence (4) facing away from said mirror layer (2).

17. The radiation-emitting semiconductor component as in one of claims 1 to 16, characterized in that
said semiconductor layer sequence (4) contains at least one n- and/or p-conductive layer (6, 8).

18. The radiation-emitting semiconductor component as in claim 17, characterized in that
the thickness of said n-conductive and/or said p-conductive layer (6, 8) is in the range of a monolayer to 1000 nm, is preferably less than 400 nm and particularly preferably is between 150 nm and 350 nm.

19. The radiation-emitting semiconductor component as in claim 17 or 18, characterized in that
the current spreading layer on the side comprising the p-conductive layer of the semiconductor layer sequence contains ZnO and preferably Al.

20. The radiation-emitting semiconductor component as in one of claims 17 to 19, characterized in that
the current spreading layer on the side comprising the n-conductive layer of the semiconductor layer sequence contains SnO and preferably Sb.

21. The radiation-emitting semiconductor component as in one of claims 1 to 20,
characterized in that
said radiation-emitting semiconductor component is affixed to a carrier (1).

22. The radiation-emitting semiconductor component as in claim 21,
characterized in that
said carrier (1) contains GaAs.

23. The radiation-emitting semiconductor component as in claim 21 or 22,
characterized in that
said radiation-emitting semiconductor component is affixed to said carrier by means of a solder metallization (11) that preferably directly adjoins said carrier (1).

24. The radiation-emitting semiconductor component as in claims 11 and 23,
characterized in that
said solder metallization (11) is disposed on said mirror layer (2).

25. The radiation-emitting semiconductor component as in one of claims 1 to 24,
characterized in that
disposed on a current spreading layer (10) is a contact surface (13) for electrical contacting.

26. The radiation-emitting semiconductor component as in claim 25,
characterized in that
said contact surface (13) is disposed on the side of said semiconductor layer sequence (4) opposite to said carrier (1).

27. The radiation-emitting semiconductor component as in claim 25 or 26,
characterized in that
said contact surface (13) has on the side facing said semiconductor layer sequence (4) a layer that reflects the generated radiation.

28. The radiation-emitting semiconductor component as in one of claims 1 to 24, characterized in that
at least one of said current spreading layers (3, 10) comprises a recess (15).

29. The radiation-emitting semiconductor component as in claim 28, characterized in that
disposed in said recess (15) is an electrically conductive contact surface (13).

30. The radiation-emitting semiconductor component as in claim 29, characterized in that
the electrical contacting of said radiation-emitting semiconductor component takes place via said contact surface (13).

31. The radiation-emitting semiconductor component as in claim 30, characterized in that
disposed on the side of said current spreading layer (10) facing said semiconductor layer sequence (4) and provided with said recess (15) and said contact surface (13) is a jacket layer or a jacket layer sequence (14).

32. The radiation-emitting semiconductor component as in claim 31, characterized in that
said jacket layer or jacket layer sequence (14) is poorly electrically conductive with respect to said contact surface (13), such that the current partially flows into said current spreading layer (10).

33. The radiation-emitting semiconductor component as in one of claims 1 to 32, characterized in that
said semiconductor layer sequence (4) contains a III/V semiconductor, preferably $In_xGa_yAl_{1-x-y}P$, where $0 \leq x \leq 1$, $0 \leq y \leq 1$ and $x + y \leq 1$, $In_xGa_yAl_{1-x-y}N$, where $0 \leq x \leq 1$, $0 \leq y \leq 1$ and $x + y \leq 1$, or $In_xGa_yAl_{1-x-y}As$, where $0 \leq x \leq 1$, $0 \leq y \leq 1$ and $x + y \leq 1$.

34. The radiation-emitting semiconductor component as in one of claims 1 to 33, characterized in that
said first current spreading layer contains ZnO and on the side nearest said semiconductor body adjoins a p-conductive AlGaAs-containing layer.

35. A method for producing a radiation-emitting semiconductor component with a semiconductor body, including a first principal surface (5), a second principal surface (9) and a semiconductor layer sequence (4) with an electromagnetic radiation generating active zone (7), said semiconductor layer sequence (4) being disposed between the first and the second principal surfaces (5, 9),
characterized by the steps of

- growing said semiconductor layer sequence (4) on a substrate (16);
- applying a radiation-transparent current spreading layer (3) to said first principal surface (5);
- removing said substrate (16);
- applying a radiation-transparent current spreading layer (10) to said second principal surface (9).

36. The method for producing a radiation-emitting semiconductor component as in claim 35, characterized in that
a mirror layer (2) is applied to said current spreading layer on said first principal surface (5) and said semiconductor body is preferably affixed on the side with said mirror layer (2) to a carrier (1).

37. The method for producing a radiation-emitting semiconductor component as in claim 35 or 36,
characterized in that
the growth of said semiconductor layer sequence (4) is effected epitaxially.

38. The method for producing a radiation-emitting semiconductor component as in one of claims 35 to 37,
characterized in that
said current spreading layers (3, 10) are applied by sputtering.

39. The method for producing a radiation-emitting semiconductor component as in one of claims 36 to 38,
characterized in that
said mirror layer (2) is applied by sputtering or vapor deposition.

40. The method for producing a radiation-emitting semiconductor component as in one of claims 35 to 39,
characterized in that
before the application of said current spreading layers (3, 10), a microstructure (12) is applied or built into or onto at least one of said principal surfaces (5, 9).

41. The method for producing a radiation-emitting semiconductor component as in one of claims 35 to 40,
characterized in that
a jacket layer sequence (14) is applied between at least one current spreading layer (3, 10) and the adjacently disposed principal surface (5, 9) and comprises a recess (15) in which said electrical contact surface (13) is constructed.